

# ***ENERGY TECHNOLOGIES STANDARDS***



This document was prepared by:

Office of Career Readiness, Adult Learning & Education Options  
Nevada Department of Education  
755 N. Roop Street, Suite 201  
Carson City, NV 89701

[www.doe.nv.gov](http://www.doe.nv.gov)

Adopted by the State Board of Education /  
State Board for Career and Technical Education on  
August 14, 2014

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*All Nevadans ready for success in the 21<sup>st</sup> century*

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*To improve student achievement and educator effectiveness by ensuring opportunities,  
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**TABLE OF CONTENTS**

Nevada State Board of Education / Nevada Department of Education.....	iii
Acknowledgements / Standards Development Members / Business and Industry Validation / Project Coordinator.....	vii
Introduction.....	ix
Content Standard 1.0 – Identify Lab Organization and Safety Procedures .....	1
Content Standard 2.0 – Apply Basic Electricity Concepts .....	2
Content Standard 3.0 – Investigate Sources of Energy.....	3
Content Standard 4.0 – Apply Fundamental Energy Principles .....	5
Content Standard 5.0 – Investigate Energy Efficiency and Conservation .....	6
Content Standard 6.0 – Construct Energy Power Systems .....	7
Crosswalks and Alignments.....	9

## ACKNOWLEDGEMENTS

The development of Nevada career and technical standards and assessments is a collaborative effort sponsored by the Office of Career Readiness, Adult Learning & Education Options at the Department of Education and the Career and Technical Education Consortium of States. The Department of Education relies on teachers and industry representatives who have the technical expertise and teaching experience to develop standards and performance indicators that truly measure student skill attainment. Most important, however, is recognition of the time, expertise and great diligence provided by the writing team members in developing the career and technical standards for Energy Technologies.

## STANDARDS DEVELOPMENT MEMBERS

Dr. Les Anderson, Consultant  
Fundamental Knowledge, Reno

Michael Budd, Teacher  
Smith Valley High School, Smith

Dustin Coli, Teacher  
Wooster High School, Reno

Leigh Metcalfe, Teacher  
Reed High School, Sparks

John Phillips, Professor BS, MS  
Truckee Meadows Community College, Reno

Michael Pointer, Consultant  
Washoe County School District, Reno

Dr. Dana Ryan, CTE Director  
Washoe County School District, Reno

David Gibson, Community Service Director/Teacher  
Envirolution, Reno  
Truckee Meadows Community College, Reno

Dr. Norma Velasquez-Bryant, Program Director  
Truckee Meadows Community College, Reno

## BUSINESS AND INDUSTRY VALIDATION

All CTE standards developed through the Nevada Department of Education are validated by business and industry through one or more of the following processes: (1) the standards are developed by a team consisting of business and industry representatives; or (2) a separate review panel was coordinated with industry experts to ensure the standards include the proper content; or (3) the adoption of nationally-recognized standards endorsed by business and industry.

The Energy Technologies standards were validated through active participation of business and industry representatives on the development team and through a complete review by the Nevada Clean Energy Sector Council.

## PROJECT COORDINATOR

Alex Kyser, Education Programs Professional  
Skilled and Technical Sciences  
Office of Career Readiness, Adult Learning & Education Options  
Nevada Department of Education

## INTRODUCTION

The standards in this document are designed to clearly state what the student should know and be able to do upon completion of an advanced high school Energy Technologies program. These standards are designed for a three-credit course sequence that prepares the student for a technical assessment directly aligned to the standards.

These exit-level standards are designed for the student to complete all standards through their completion of a program of study. These standards are intended to guide curriculum objectives for a program of study.

The standards are organized as follows:

**Content Standards** are general statements that identify major areas of knowledge, understanding, and the skills students are expected to learn in key subject and career areas by the end of the program.

**Performance Standards** follow each content standard. Performance standards identify the more specific components of each content standard and define the expected abilities of students within each content standard.

**Performance Indicators** are very specific criteria statements for determining whether a student meets the performance standard. Performance indicators may also be used as learning outcomes, which teachers can identify as they plan their program learning objectives.

The crosswalk and alignment section of the document shows where the performance indicators support the Nevada Academic Content Standards in Science (based on the Next Generation Science Standards) and the English Language Arts and Mathematics (based on the Common Core State Standards). Where correlation with an academic content standard exists, students in the Energy Technologies program perform learning activities that support, either directly or indirectly, achievement of the academic content standards that are listed.

All students are encouraged to participate in the career and technical student organization (CTSO) that relates to their program area. CTSOs are co-curricular national associations that directly enforce learning in the CTE classroom through curriculum resources, competitive events, and leadership development. CTSOs provide students the ability to apply academic and technical knowledge, develop communication and teamwork skills, and cultivate leadership skills to ensure college and career readiness.

The Employability Skills for Career Readiness identify the “soft skills” needed to be successful in all careers, and must be taught as an integrated component of all CTE course sequences. These standards are available in a separate document.

The **Standards Reference Code** is only used to identify or align performance indicators listed in the standards to daily lesson plans, curriculum documents, or national standards.

Program Name	Standards Reference Code
Energy Technologies	ENRGY

Example: ENRGY.2.3.4

Standards	Content Standard	Performance Standard	Performance Indicator
Energy Technologies	2	3	4

**CONTENT STANDARD 1.0 : IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES**
**PERFORMANCE STANDARD 1.1 : DEMONSTRATE GENERAL LAB SAFETY RULES AND PROCEDURES**

- |        |   |
|--------|---|
| 1.1.1  | Describe general shop safety rules and procedures   |
| 1.1.2  | Demonstrate knowledge of OSHA/EPA and their role in workplace safety  |
| 1.1.3  | Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities (i.e., personal protection equipment – PPE)  |
| 1.1.4  | Utilize safe procedures for handling of tools and equipment   |
| 1.1.5  | Operate lab equipment according to safety guidelines  |
| 1.1.6  | Identify and use proper lifting procedures and proper use of support equipment  |
| 1.1.7  | Utilize proper ventilation procedures for working within the lab/shop area  |
| 1.1.8  | Identify marked safety areas  |
| 1.1.9  | Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment |
| 1.1.10 | Identify the location and use of eye wash stations  |
| 1.1.11 | Identify the location of the posted evacuation routes   |
| 1.1.12 | Identify and wear appropriate clothing for lab/shop activities  |
| 1.1.13 | Secure hair and jewelry for lab/shop activities   |
| 1.1.14 | Demonstrate knowledge of the safety aspects of low and high voltage circuits  |
| 1.1.15 | Locate and interpret safety data sheets (e.g., SDS / MSDS)  |
| 1.1.16 | Prepare time or job cards, reports or records   |
| 1.1.17 | Perform housekeeping duties   |
| 1.1.18 | Follow verbal instructions to complete work assignments   |
| 1.1.19 | Follow written instructions to complete work assignments  |

**PERFORMANCE STANDARD 1.2 : IDENTIFY AND UTILIZE HAND TOOLS**

- |       |  |
|-------|--|
| 1.2.1 | Identify hand tools and their appropriate usage                |
| 1.2.2 | Identify standard and metric designation                       |
| 1.2.3 | Demonstrate the proper techniques when using hand tools        |
| 1.2.4 | Demonstrate safe handling and use of appropriate tools         |
| 1.2.5 | Demonstrate proper cleaning, storage, and maintenance of tools |

**PERFORMANCE STANDARD 1.3 : IDENTIFY AND UTILIZE POWER TOOLS AND EQUIPMENT**

- |       |  |
|-------|--|
| 1.3.1 | Identify power tools and their appropriate usage                                   |
| 1.3.2 | Identify equipment and their appropriate usage                                     |
| 1.3.3 | Demonstrate the proper techniques when using power tools and equipment             |
| 1.3.4 | Demonstrate safe handling and use of appropriate power tools and equipment         |
| 1.3.5 | Demonstrate proper cleaning, storage, and maintenance of power tools and equipment |

**CONTENT STANDARD 2.0 : APPLY BASIC ELECTRICITY CONCEPTS****PERFORMANCE STANDARD 2.1 : INVESTIGATE BASIC ELECTRICITY FUNDAMENTALS**

- |        |   |
|--------|---|
| 2.1.1  | Define electricity  |
| 2.1.2  | Describe the basic electrical principles  |
| 2.1.3  | Explain the laws of attraction and repulsion and the principle of charge              |
| 2.1.4  | Discuss the concepts of current flow, electrical pressure, resistance, and energy     |
| 2.1.5  | Describe the relationship of conductor size and length to current flow and resistance |
| 2.1.6  | Identify various electrical units such as voltage, current, resistance, and power     |
| 2.1.7  | Summarize electrical static discharge and how it is generated                         |
| 2.1.8  | Compare and contrast Alternating and Direct Current (AC/DC)                           |
| 2.1.9  | Identify industry standard symbols  |
| 2.1.10 | Create schematic diagrams using proper symbols  |
| 2.1.11 | Annotate schematics legibly   |

**PERFORMANCE STANDARD 2.2 : APPLY ELECTRICAL PRINCIPLES**

- |       |   |
|-------|---|
| 2.2.1 | Demonstrate safe use of electricity and lab equipment   |
| 2.2.2 | Demonstrate basic electrical theory   |
| 2.2.3 | Identify electrical components and their applications (e.g., switches, fuses, relays, resistors, capacitors, inductors, transformers, etc.) |
| 2.2.4 | Utilize tools and test equipment appropriately  |
| 2.2.5 | Measure electrical characteristics of voltage, current, and resistance in basic electrical circuits using multimeters                       |
| 2.2.6 | Calculate Ohm's Law and power equations   |
| 2.2.7 | Discuss appropriate use of various electrical connections (e.g., crimp connectors, wire nuts, soldering, lugs, etc.)                        |
| 2.2.8 | Construct, measure, and analyze simple series, parallel, and series-parallel (combination) circuits utilizing a schematic                   |

**CONTENT STANDARD 3.0 : INVESTIGATE SOURCES OF ENERGY****PERFORMANCE STANDARD 3.1 : IDENTIFY SOURCES OF ENERGY**

- |        |  |
|--------|--|
| 3.1.1  | Define energy and name its sources   |
| 3.1.2  | Classify energy sources as renewable or non-renewable energy   |
| 3.1.3  | Identify the different usages of energy  |
| 3.1.4  | Identify the different methods of converting energy into electricity   |
| 3.1.5  | Explain how electricity is transmitted, distributed, and stored  |
| 3.1.6  | Describe the environmental impacts of producing and distributing electricity and methods used to minimize negative effects |
| 3.1.7  | Describe the economics of power generation, distribution, and storage  |
| 3.1.8  | Identify safety considerations associated with the power industry  |
| 3.1.9  | Identify career opportunities and training requirements in the power industry  |
| 3.1.10 | Identify concerns that might affect the future of the power industry   |
| 3.1.11 | Investigate new and emerging technologies that might affect the future of the power industry                               |

**PERFORMANCE STANDARD 3.2 : DESCRIBE FOSSIL FUELS**

- |       |   |
|-------|---|
| 3.2.1 | Describe the formation of fossil fuels (i.e., petroleum, coal, natural gas) |
| 3.2.2 | Compare and contrast extraction methods                                     |
| 3.2.3 | Describe availability, allocation, and conservation efforts                 |
| 3.2.4 | Discuss the advantages and disadvantages of using fossil fuels              |
| 3.2.5 | Describe the past, present, and future of fossil fuels                      |

**PERFORMANCE STANDARD 3.3 : DESCRIBE SOLAR ENERGY**

- |       |   |
|-------|---|
| 3.3.1 | Define solar power  |
| 3.3.2 | Describe and explain how solar power is generated and harnessed |
| 3.3.3 | Discuss the advantages and disadvantages of solar energy        |
| 3.3.4 | Describe the past, present, and future of solar energy          |

**PERFORMANCE STANDARD 3.4 : DESCRIBE WIND ENERGY**

- |       |  |
|-------|--|
| 3.4.1 | Define wind power  |
| 3.4.2 | Describe and explain how wind power is generated and harnessed |
| 3.4.3 | Discuss the advantages and disadvantages of wind energy        |
| 3.4.4 | Describe the past, present, and future of wind energy          |



**PERFORMANCE STANDARD 3.5 : DESCRIBE HYDROPOWER ENERGY**

- |       |  |
|-------|--|
| 3.5.1 | Define hydropower  |
| 3.5.2 | Describe and explain how hydropower is generated and harnessed |
| 3.5.3 | Discuss the advantages and disadvantages of hydropower energy  |
| 3.5.4 | Describe the past, present, and future of hydropower energy    |

**PERFORMANCE STANDARD 3.6 : DESCRIBE GEOTHERMAL ENERGY**

- |       |  |
|-------|--|
| 3.6.1 | Define geothermal power  |
| 3.6.2 | Describe and explain how geothermal power is generated and harnessed |
| 3.6.3 | Discuss the advantages and disadvantages of geothermal energy        |
| 3.6.4 | Describe the past, present, and future of geothermal energy          |

**PERFORMANCE STANDARD 3.7 : DESCRIBE BIOMASS ENERGY**

- |       |   |
|-------|---|
| 3.7.1 | Define biomass power  |
| 3.7.2 | Describe and explain how biomass power is generated and harnessed |
| 3.7.3 | Discuss the advantages and disadvantages of biomass energy        |
| 3.7.4 | Describe the past, present, and future of biomass for energy      |

**PERFORMANCE STANDARD 3.8 : DESCRIBE NUCLEAR ENERGY**

- |       |   |
|-------|---|
| 3.8.1 | Define nuclear power  |
| 3.8.2 | Describe and explain how nuclear power is generated and harnessed |
| 3.8.3 | Discuss the advantages and disadvantages of nuclear energy        |
| 3.8.4 | Describe the past, present, and future of nuclear energy          |

**CONTENT STANDARD 4.0 : APPLY FUNDAMENTAL ENERGY PRINCIPLES****PERFORMANCE STANDARD 4.1 : IDENTIFY ENERGY FORMS**

- |       |   |
|-------|---|
| 4.1.1 | Define industry standard terminology  |
| 4.1.2 | Identify energy forms (i.e., thermal, radiant, nuclear, chemical, electrical, mechanical) |
| 4.1.3 | Identify units used to measure energy   |
| 4.1.4 | Analyze and apply data and measurements to solve problems and interpret documents         |
| 4.1.5 | Calculate unit conversions between common energy measurements                             |

**PERFORMANCE STANDARD 4.2 : DISTINGUISH POTENTIAL AND KINETIC ENERGY**

- |       |  |
|-------|--|
| 4.2.1 | Define potential and kinetic energy                                |
| 4.2.2 | Identify forms of potential and kinetic energy                     |
| 4.2.3 | Research energy conversions (i.e., potential to kinetic)           |
| 4.2.4 | Calculate potential and kinetic energy, including unit conversions |

**PERFORMANCE STANDARD 4.3 : IDENTIFY THERMODYNAMICS**

- |       |   |
|-------|---|
| 4.3.1 | Define thermodynamics   |
| 4.3.2 | Utilize industry standard terminology   |
| 4.3.3 | Identify the common units of measurement  |
| 4.3.4 | Investigate the Laws of Thermodynamics  |
| 4.3.5 | Demonstrate the concepts of heat transfer (i.e., conduction, convection, radiation) |

## **CONTENT STANDARD 5.0 : INVESTIGATE ENERGY EFFICIENCY AND CONSERVATION**

### **PERFORMANCE STANDARD 5.1 : IDENTIFY EFFICIENCY PRINCIPLES**

- 5.1.1 Define efficiency, conservation, weatherization, and industry standard terminology
- 5.1.2 Describe how energy is used within various sectors of society
- 5.1.3 Investigate future trends in energy technology
- 5.1.4 Describe common terms and units used on residential and commercial energy bills
- 5.1.5 Explain the societal, environmental, and economic advantages of energy conservation

### **PERFORMANCE STANDARD 5.2 : EXAMINE PRIMARY BUILDING SYSTEMS**

- 5.2.1 Describe common techniques for reducing building energy consumption (e.g., behavioral, equipment upgrades, control systems, and proper maintenance)
- 5.2.2 Formulate cost benefit analysis for common lighting and appliance improvements
- 5.2.3 Describe various water heating systems and conservation methods
- 5.2.4 Describe how the different components that make up the building shell can affect a home's energy usage
- 5.2.5 Examine the efficiency of a residential building shell (e.g., blower door, infra-red camera, etc.)
- 5.2.6 Explain common mechanical systems (e.g., HVACR, plumbing, electrical)
- 5.2.7 Calculate energy loss through a home energy audit

### **PERFORMANCE STANDARD 5.3 : INVESTIGATE POLICY AND CODES**

- 5.3.1 Research types of codes required for building construction and renovation (e.g., IBC, NEC, IECC)
- 5.3.2 Examine national, state, and local energy and efficiency policies
- 5.3.3 Describe the role of Energy Star in efficiency and conservation
- 5.3.4 Summarize techniques for energy efficient construction
- 5.3.5 Explain the role of industry certifications for efficient buildings (e.g., LEED, BPI, Passivhaus, Green Globes, HERS, etc.)

**CONTENT STANDARD 6.0 : CONSTRUCT ENERGY POWER SYSTEMS****PERFORMANCE STANDARD 6.1 : INVESTIGATE SOLAR POWER SYSTEMS**

- |        |   |
|--------|---|
| 6.1.1  | Evaluate the advantages and disadvantages of solar power technology   |
| 6.1.2  | Identify solar thermal and photovoltaic (PV) applications   |
| 6.1.3  | Identify solar power system components and their functions  |
| 6.1.4  | Identify safety hazards associated with solar power systems   |
| 6.1.5  | List system sizing considerations   |
| 6.1.6  | Identify electrical, mechanical, and structural system design considerations  |
| 6.1.7  | Describe the tasks required to complete a site analysis (e.g., field sketching, sun path, building orientation)       |
| 6.1.8  | Identify the effects of the environment on systems output   |
| 6.1.9  | Describe how to install a simple residential PV system  |
| 6.1.10 | Explain how to assess system operation and efficiencies   |
| 6.1.11 | Recognize the tasks required when performing maintenance and troubleshooting  |
| 6.1.12 | Identify appropriate codes and standards concerning installation, operation, and maintenance of systems and equipment |
| 6.1.13 | Formulate a plan, considering realistic constraints, for the implementation of a solar power system                   |
| 6.1.14 | Design and construct a basic solar power system   |
| 6.1.15 | Investigate new technologies in solar power systems   |

**PERFORMANCE STANDARD 6.2 : INVESTIGATE WIND POWER SYSTEMS**

- |        |   |
|--------|---|
| 6.2.1  | Evaluate the advantages and disadvantages of wind power technology (e.g., environmental, economic, political) |
| 6.2.2  | Identify the important events, people, and organizations in the history of wind power to date                 |
| 6.2.3  | Describe wind energy concepts and how the energy is captured  |
| 6.2.4  | List system sizing considerations   |
| 6.2.5  | Describe the tasks required to complete a site analysis (e.g., location, maps, monitoring analysis)           |
| 6.2.6  | Identify the basic functions and classifications of wind turbines   |
| 6.2.7  | Identify major horizontal-axis wind turbine (HAWT) components and their function                              |
| 6.2.8  | Describe the wind farm environment and characteristics of the wind energy maintenance technician              |
| 6.2.9  | Formulate a plan, considering realistic constraints, for the implementation of a wind power system            |
| 6.2.10 | Design and construct a basic wind power system  |
| 6.2.11 | Investigate new technologies in wind power systems  |

**PERFORMANCE STANDARD 6.3 : INVESTIGATE GEOTHERMAL POWER SYSTEMS**

- |        |  |
|--------|--|
| 6.3.1  | Evaluate the advantages and disadvantages of geothermal power technology     |
| 6.3.2  | Describe different ways in which geothermal energy can be used               |
| 6.3.3  | Research the history of geothermal power systems                             |
| 6.3.4  | Diagram how a geothermal heat pump works                                     |
| 6.3.5  | Differentiate between surface and sub-surface technology                     |
| 6.3.6  | Describe geothermal power systems processes                                  |
| 6.3.7  | Identify the different types of geothermal plants (e.g., flash, dry, binary) |
| 6.3.8  | Diagram how a geothermal power plant works                                   |
| 6.3.9  | Describe drilling requirements   |
| 6.3.10 | Discuss how a conventional geothermal reservoir works                        |
| 6.3.11 | Research potential geothermal resource locations                             |
| 6.3.12 | Investigate new technologies and processes in geothermal power systems       |

**CROSSWALKS AND ALIGNMENTS OF  
ENERGY TECHNOLOGIES STANDARDS  
AND THE NEVADA ACADEMIC CONTENT STANDARDS  
AND THE COMMON CAREER TECHNICAL CORE STANDARDS**

**CROSSWALKS** (ACADEMIC STANDARDS)

The crosswalk of the Energy Technologies Standards shows links to the Nevada Academic Content Standards in Science (based on the Next Generation Science Standards – Disciplinary Core Ideas Arrangement) and the English Language Arts and Mathematics (based on the Common Core State Standards). The crosswalk identifies the performance indicators in which the learning objectives in the Energy Technologies program support academic learning. The performance indicators are grouped according to their content standard and are crosswalked to the Nevada Academic Content Standards in Science, English Language Arts, and Mathematics.

**ALIGNMENTS** (MATHEMATICAL PRACTICES)

In addition to correlation with the Nevada Academic Content Standards for Mathematics, many performance indicators support the Mathematical Practices. The following table illustrates the alignment of the Energy Technologies Standards Performance Indicators and the Mathematical Practices. This alignment identifies the performance indicators in which the learning objectives in the Energy Technologies program support academic learning.

**CROSSWALKS** (COMMON CAREER TECHNICAL CORE)

The crosswalk of the Energy Technologies Standards shows links to the Common Career Technical Core. The crosswalk identifies the performance indicators in which the learning objectives in the Energy Technologies program support the Common Career Technical Core. The Common Career Technical Core defines what students should know and be able to do after completing instruction in a program of study. The Energy Technologies Standards are crosswalked to the Science, Technology, Engineering & Mathematics Career Cluster™ and the Engineering & Technology Career Pathway.

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## CROSSWALK OF ENERGY TECHNOLOGIES STANDARDS AND THE NEVADA ACADEMIC CONTENT STANDARDS

### CONTENT STANDARD 1.0: IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES

Performance Indicators	Nevada Academic Content Standards
1.1.1	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.</p> <p>RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>
1.1.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>
1.1.9	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>
1.1.15	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.</p> <p>RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.</p> <p>RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.</p>
1.1.16	<p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>



1.1.18	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b> SL.11-12.1d Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.</p>
1.1.19	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.</p> <p>RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p>

## CONTENT STANDARD 2.0: APPLY BASIC ELECTRICITY CONCEPTS

Performance Indicators	Nevada Academic Content Standards
2.1.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
2.1.3	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Motion and Stability: Forces and Interactions</u></b>  HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.</p>
2.1.4	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Motion and Stability: Forces and Interactions</u></b>  HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.</p>
2.1.5	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>

2.1.7	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Motion and Stability: Forces and Interactions</u></b>  HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.</p>
2.1.8	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
2.1.10	<p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>
2.2.6	<p><b><u>Math: Algebra – Creating Equations</u></b>  A-CED.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.</p> <p><b><u>Math: Algebra – Reasoning with Equations and Inequalities</u></b>  A-REI.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p> <p><b><u>Math: Functions – Linear, Quadratic, and Exponential Models</u></b>  F-LE.5 Interpret the parameters in a linear or exponential function in terms of a context.</p>
2.2.7	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>
2.2.8	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.</p>

## CONTENT STANDARD 3.0: INVESTIGATE SOURCES OF ENERGY

Performance Indicators	Nevada Academic Content Standards
3.1.4	<p><b><u>Science: HS-Energy</u></b>            HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.</p> <p><b><u>Science: HS-Motion and Stability: Forces and Interactions</u></b>            HS-PS2-5 Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.</p>
3.1.5	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>            SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Energy</u></b>            HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.</p> <p>HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.</p>
3.1.6	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>            RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>            WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b>            SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.</p> <p><b><u>Science: HS-Earth's Systems</u></b>            HS-ESS2-6 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.</p> <p>HS-ESS2-4 Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>            HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p> <p>HS-ESS3-3 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</p> <p>HS-ESS3-4 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</p> <p>HS-ESS3-6 Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</p>

3.1.7	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>
3.1.11	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.2.1	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.2.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.2.3	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>

3.2.4	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Earth's Systems</u></b>  HS-ESS2-4 Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>
3.2.5	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-5 Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p>
3.3.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Waves and Their Applications in Technologies for Information Transfer</u></b>  HS-PS4-5 Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.</p>
3.3.3	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>

3.3.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.4.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.4.3	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>
3.4.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.5.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>

3.5.3	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>
3.5.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.6.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.6.3	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>
3.6.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>



3.7.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.7.3	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>
3.7.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
3.8.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Matter and Its Interactions</u></b>  HS-PS1-8 Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.</p>
3.8.3	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Earth and Human Activity</u></b>  HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p>HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>

3.8.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
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## CONTENT STANDARD 4.0: APPLY FUNDAMENTAL ENERGY PRINCIPLES

Performance Indicators	Nevada Academic Content Standards
4.1.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
4.2.3	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Energy</u></b>  HS-PS3-1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.</p>
4.2.4	<p><b><u>Science: HS-Energy</u></b>  HS-PS3-1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.</p>
4.3.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.</p>
4.3.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Energy</u></b>  HS-PS3-4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).</p>
4.3.5	<p><b><u>Science: HS-Energy</u></b>  HS-PS3-4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).</p>

**CONTENT STANDARD 5.0: INVESTIGATE ENERGY EFFICIENCY AND CONSERVATION**

<b>Performance Indicators</b>	<b>Nevada Academic Content Standards</b>
5.1.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
5.1.3	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
5.1.4	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>
5.1.5	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>

5.2.1	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>
5.2.3	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
5.2.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
5.2.5	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</p>
5.2.6	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>

5.3.1	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
5.3.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p>
5.3.3	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>
5.3.4	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
5.3.5	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>

## CONTENT STANDARD 6.0: CONSTRUCT ENERGY POWER SYSTEMS

Performance Indicators	Nevada Academic Content Standards
6.1.1	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Engineering Design</u></b>  HS-ETS1-1 Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.</p>
6.1.7	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Engineering Design</u></b>  HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</p> <p>HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.</p>
6.1.8	<p><b><u>Science: HS-Engineering Design</u></b>  HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.</p>
6.1.9	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.</p>
6.1.10	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>
6.1.11	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>

6.1.13	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</p> <p><b><u>Science: HS-Energy</u></b> HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.</p>
6.1.14	<p><b><u>Science: HS-Energy</u></b> HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.</p> <p><b><u>Science: HS-Engineering Design</u></b> HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</p> <p>HS-ETS1-4 Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.</p>
6.1.15	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b> SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.</p>
6.2.1	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>Science: HS-Engineering Design</u></b> HS-ETS1-1 Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.</p>
6.2.3	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b> SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>



6.2.5	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Engineering Design</u></b>  HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.</p>
6.2.8	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p>
6.2.9	<p><b><u>Science: HS-Energy</u></b>  HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.</p> <p><b><u>Science: HS-Engineering Design</u></b>  HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</p> <p>HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.</p>
6.2.10	<p><b><u>Science: HS-Energy</u></b>  HS-PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.</p> <p><b><u>Science: HS-Engineering Design</u></b>  HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</p> <p>HS-ETS1-4 Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.</p>
6.2.9	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</p>

6.2.11	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b> SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.</p>
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6.3.2	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
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6.3.4	<p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>

6.3.5	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
6.3.6	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b> RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b> WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
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6.3.10	<p><b><u>English Language Arts: Speaking and Listening Standards</u></b> SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.</p> <p><b><u>Science: HS-Energy</u></b> HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.</p> <p><b><u>Science: HS-Engineering Design</u></b> HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</p> <p>HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.</p>

6.3.11	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>
6.3.12	<p><b><u>English Language Arts: Reading Standards for Literacy in Science and Technical Subjects</u></b>  RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p><b><u>English Language Arts: Writing Standards for Literacy in Science and Technical Subjects</u></b>  WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p><b><u>English Language Arts: Speaking and Listening Standards</u></b>  SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.</p>

**ALIGNMENT OF ENERGY TECHNOLOGIES STANDARDS  
AND THE MATHEMATICAL PRACTICES**

<b>Mathematical Practices</b>	<b>Energy Technologies Performance Indicators</b>
1. Make sense of problems and persevere in solving them.	2.2.8 4.1.4 5.2.2
2. Reason abstractly and quantitatively.	2.2.6, 2.2.8 4.1.4; 4.3.5 5.2.2
3. Construct viable arguments and critique the reasoning of others.	2.2.6 4.1.4 5.2.2
4. Model with mathematics.	2.2.6 4.1.4; 4.3.5 5.2.2
5. Use appropriate tools strategically.	2.2.4, 2.2.5, 2.2.8 4.1.5; 4.2.4 5.2.7 6.1.14; 6.2.10
6. Attend to precision.	2.2.5, 2.2.6, 2.2.8 4.1.5; 4.2.4 5.2.7 6.1.14; 6.2.10
7. Look for and make use of structure.	2.2.8 4.1.4
8. Look for and express regularity in repeated reasoning.	2.2.8 4.1.4

**CROSSWALKS OF ENERGY TECHNOLOGIES STANDARDS  
AND THE COMMON CAREER TECHNICAL CORE**

<b>Science, Technology, Engineering &amp; Mathematics Career Cluster™ (ST)</b>	<b>Performance Indicators</b>
1. Apply engineering skills in a project that requires project management, process control and quality assurance.	2.2.8; 6.1.14; 6.2.10
2. Use technology to acquire, manipulate, analyze and report data.	2.2.4, 2.2.5, 2.2.8 4.1.4; 5.2.2, 5.2.5, 5.2.7
3. Describe and follow safety, health and environmental standards related to science, technology, engineering and mathematics (STEM) workplaces.	1.1.1-1.1.19; 1.2.4; 1.3.4 2.2.1; 3.1.6, 3.1.8 5.3.1, 5.3.2, 5.3.5
4. Understand the nature and scope of the Science, Technology, Engineering & Mathematics Career Cluster™ and the role of STEM in society and the economy.	3.1.7; 5.1.2, 5.1.5
5. Demonstrate an understanding of the breadth of career opportunities and means to those opportunities in each of the Science, Technology, Engineering & Mathematics Career Pathways.	3.1.9
6. Demonstrate technical skills needed in a chosen STEM field.	2.2.8; 6.1.14; 6.2.10

<b>Engineering &amp; Technology Career Pathway (ST-ET)</b>	<b>Performance Indicators</b>
1. Use STEM concepts and processes to solve problems involving design and/or production.	5.2.1, 5.2.4, 5.2.5 6.1.7; 6.2.5
2. Display and communicate STEM information.	2.1.10, 2.1.11
3. Apply processes and concepts for the use of technological tools in STEM.	6.1.11
4. Apply the elements of the design process.	6.1.14; 6.2.10
5. Apply the knowledge learned in STEM to solve problems.	5.2.1, 5.2.4, 5.2.5
6. Apply the knowledge learned in the study of STEM to provide solutions to human and societal problems in an ethical and legal manner.	3.1.6; 3.2.4; 3.3.3; 3.4.3 3.5.3; 3.6.3; 3.7.3; 3.8.3